



COMPLEMENT YOUR APPLICATION WITH THESE ADDITIONAL CAPABILITIES

- AM/FM detector and built-in speaker/head-phone jack for signal demodulation
- Faster measurements using built-in routines for:
 - Occupied bandwidth
 - Adjacent channel leakage
 - Noise power
 - 2nd and 3rd order distortion
 - Percent AM
- 10 MHz external reference input for additional frequency accuracy
- Composite video output to display spectrum on a large screen monitor or hard copy on a video printer
- 75 Ω input for broadband network applications (U4941N)

Characteristics

FREQUENCY RELATED

Frequency Range – 9 kHz to 2.2 GHz.

Frequency Readout Accuracy (Start, Stop, CF, Marker) – \pm (span x span accuracy + 0.15 x RBW + 50 kHz).

Count Frequency Marker (S/N \geq 25 dB, 50 kHz \leq 1 GHz span, RBW \geq 100 kHz) – Resolution: 1 Hz to 10 kHz. Count accuracy: +(marker freq. x freq. reference accuracy + 1 LSD \pm 5 Hz).

Frequency Reference Accuracy – $\pm 2 \times 10^{-6}$ /year. $\pm 1 \times 10^{-5}$ (at 0°C to 50°C).

Frequency Span – Range: 50 kHz to 2.4 GHz, ZERO. Accuracy: $\leq \pm 5\%$ (SPAN \geq 100 kHz).

Frequency Stability – Residual FM: ≤ 3 kHz p-p/100 ms. Frequency drift (50 ms to 5 s sweep time): ≤ 10 kHz after 30 minute warm-up.

Noise Sidebands – ≤ 100 dBc/Hz at 20 kHz offset.

Resolution Bandwidth (3 dB) – Range: 1 kHz to 3 MHz, 1, 3 sequence. Bandwidth accuracy: $\leq \pm 20\%$ 1 kHz to 1 MHz; $\leq \pm 25\%$ at 3 MHz. Selectivity: $\leq 15:1$ 60 dB to 3 dB. Bandwidth (6 dB): 9 kHz, 120 kHz (conforming to CISPR standard).

Video Bandwidth – 10 Hz to 3 MHz

AMPLITUDE RELATED

Amplitude Range – +20 dBm to displayed average noise level; +130 dB μ V to displayed average noise level.

Maximum Input Level – Preamplifier OFF: +27 dBm, +134 dB μ V (input atten. ≥ 10 dB), ± 50 VDC max. Preamplifier ON: +13 dBm, +120 dB μ V, ± 50 VDC max.

Display Range – Log: 10 x 10 divisions; 10, 5, 2, 1 dB/div. Linear: 10% of reference level/div. QP Log: 40 dB (5 dB/div).

Reference Level Range – Preamplifier OFF: Log, -64 dBm to +40 dBm (0.1 dB step); +46 dB μ V to +150 dB μ V. Linear, 141.1 μ V to 22.36 V. Preamplifier ON: Log, -84 dBm to +10 dBm (0.1 dB step); +26 dB μ V to +120 dB μ V. Linear, 14.11 μ V to 707.1 mV, 19.95 μ V to 1 V.

Input Attenuator Range – 0 to 50 dB (10 dB step).

DYNAMIC RANGE

Displayed Average Noise Level – Preamplifier OFF: -117 dBm + 2.7 f (GHz) dB; -8 dB μ V + 2.7 f (GHz) dB. Preamplifier ON: -132 dBm + 3.3 f (GHz) dB; -23 dB μ V + 3.3 f (GHz) dB. (RBW 1 kHz, VBW 10 Hz, Input atten. 0 dB, f ≥ 1 MHz).

Gain Compression (1 dB) – Preamplifier OFF: > -10 dBm (mixer input level, f ≥ 10 MHz); $> +100$ dB μ V. Preamplifier ON: > -40 dBm (RF input level, f > 10 MHz); $> +70$ dB μ V.

Spurious Response, Preamplifier OFF (-30 dBm input, input atten. 0 dB, f ≥ 10 MHz) – Second harmonic distortion, ≤ -70 dB. Third order intermodulation distortion, ≤ -70 dB.

Residual Responses (input atten. 0 dB, f ≥ 1 MHz) – Preamplifier OFF: ≤ -100 dBm; $\leq +10$ dB μ V. Preamplifier ON: ≤ -115 dBm; ≤ -5 dB μ V.

AMPLITUDE ACCURACY

Frequency Response – Preamplifier OFF (input atten. 10 dB, 20°C to 30°C after calibration): $\leq \pm 1$ dB (100 kHz to 2 GHz); $\leq \pm 2$ dB (9 kHz to 2.2 GHz). Preamplifier ON (input atten. 10 dB): $\leq \pm 1$ dB (100 kHz to 2 GHz); $\leq \pm 2$ dB (9 kHz to 2.2 GHz).

Calibration Signal Accuracy – -20 dBm ± 0.3 dB; +78 dB μ V ± 0.3 dB.

IF Gain Uncertainty (after automatic calibration) – $< \pm 0.5$ dB.

Scale Fidelity (after automatic calibration) – Log: $\leq \pm 1.5$ dB/90 dB; $\leq \pm 1.0$ dB/10 dB; $\leq \pm 0.2$ dB/1 dB. Linear: $\pm 5\%$ of reference level.

Input Attenuator Switching Accuracy (20 to 70 dB settings referenced to 10 dB) – $< \pm 1.0$ dB (100 kHz to 2 GHz); $< \pm 1.5$ dB (9 kHz to 2.2 GHz).

Resolution Bandwidth Switching Uncertainty (after automatic calibration) – $< \pm 1.0$ dB relative to 3 MHz RBW.

SWEEP RELATED

Sweep Time Accuracy – 50 ms to 1000 s and manual sweep $\leq \pm 5\%$.

Trigger Mode – FREE RUN, SINGLE, VIDEO, EXT. TV.

DEMODULATION

Spectrum Demodulation – Modulation type: AM and FM. Audio output: Speaker and phone jack with volume control.